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W. L. H.

On

# Inaugural Dissertation

on

## Poison from Opium.

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By E. Birns Merton,

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1827.

posture all right

11.2.6

tail like a wavy line

small and small

small & P

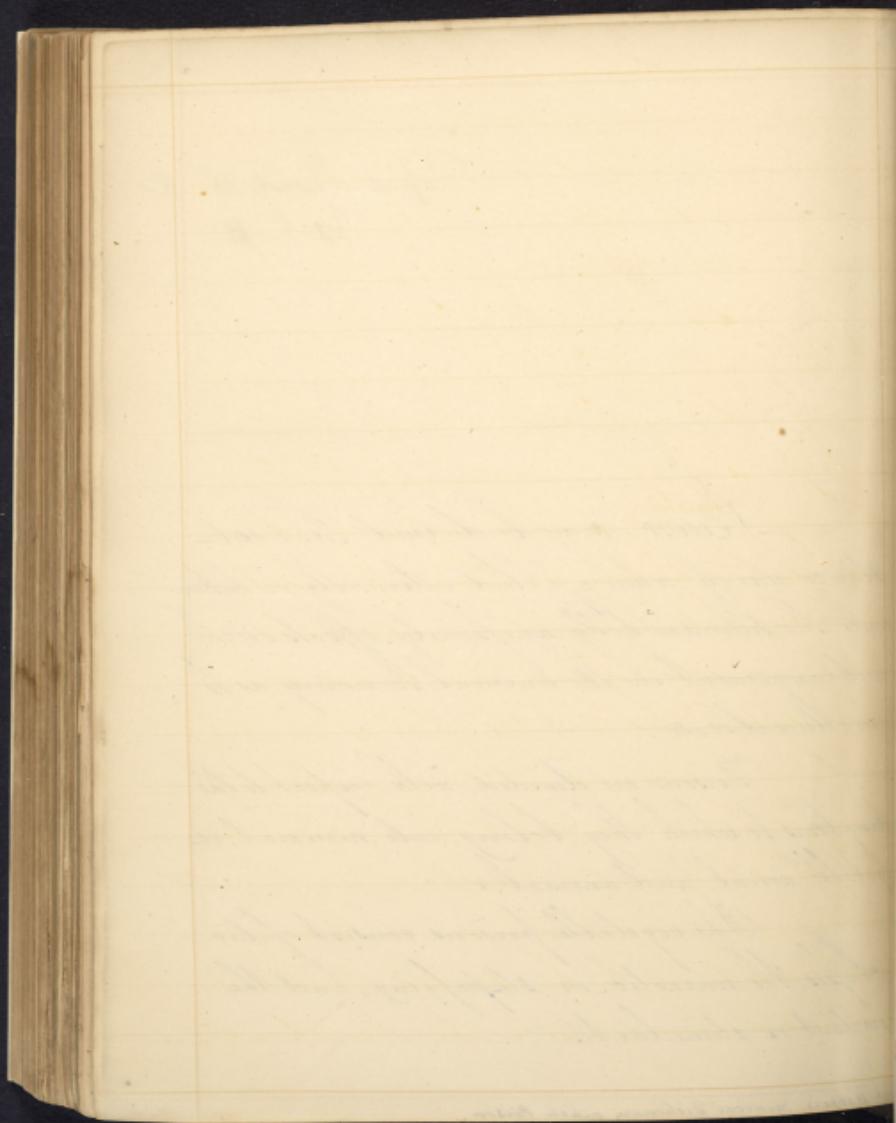
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Poison may be defined that sub-  
stance which when applied externally or taken  
into the human body uniformly effects such  
a derangement in the animal economy as to  
provoke disease.

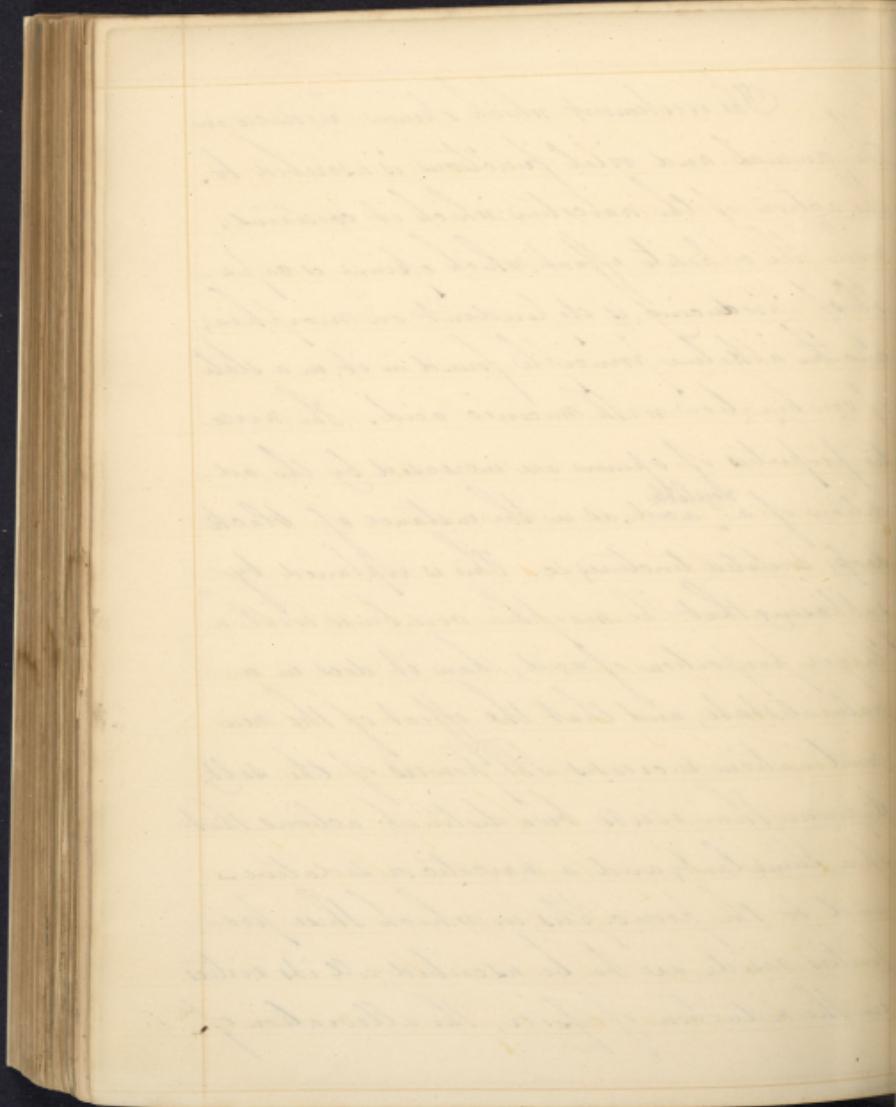
Poisons are divided, with respect to the  
kingdoms to which they belong, into mineral, ve-  
getable, aerial, and animal.

The vegetable poisons consist of two  
classes, the narcotic or stupefying, and the  
irritant or stimulant.

<sup>1</sup> Hooper's Medical Dictionary, article Poison.

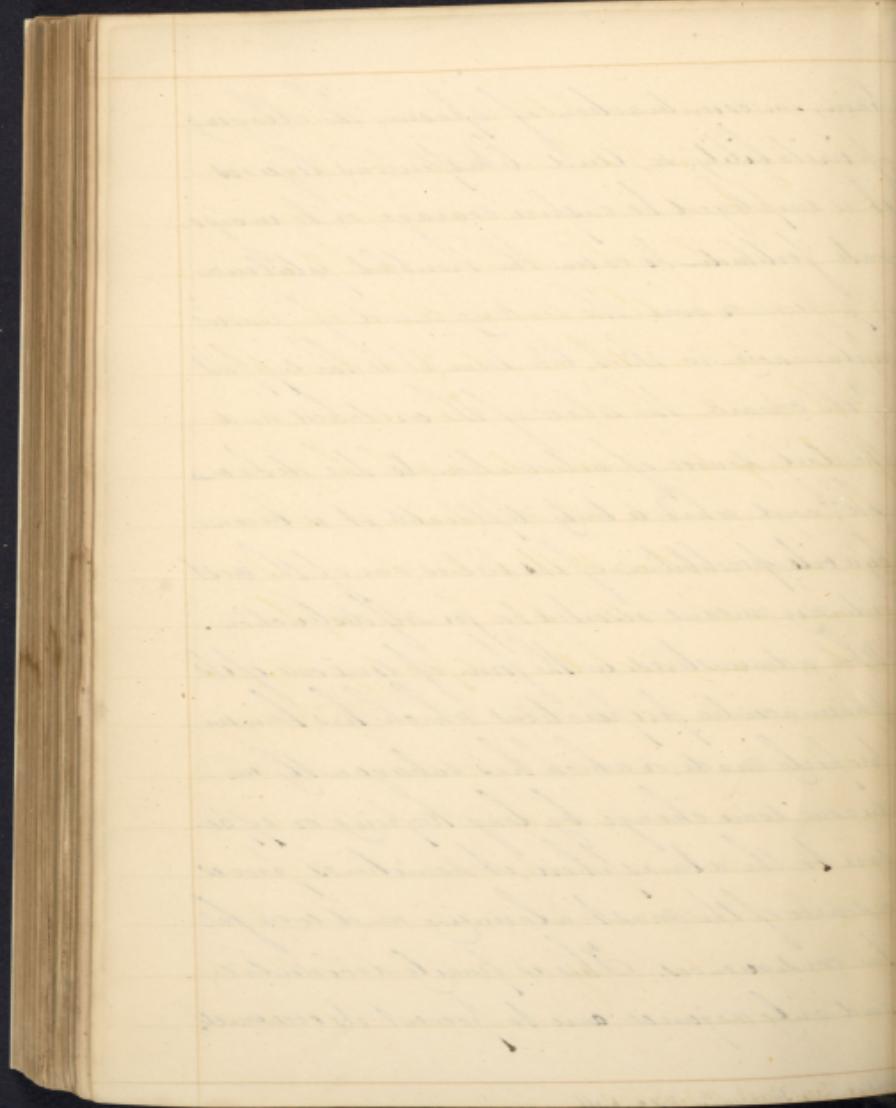


The excitement which opium produces on the animal and vital functions is ascribed to the action of the narcotic which it contains; while the opposite effect, which opium is capable of producing, is dependent on morphia, another alkaline principle found in it, in a state of combination with mucous acid. The narcotic properties of opium are increased by the addition of a <sup>vegetable</sup> acid, as in the instance of black soap, aceted tincture, &c. This is explained by supposing that the morphia combines with a larger proportion of acid, than it does in a natural state, and that the effect of the new combination increases the powers of the salt. Opium, then, exerts two distinct actions, that of a stimulant, and a narcotic or sedative— and to the principles, in which these properties reside, are to be ascribed, all its virtues in the reduction of fever, the alleviation of



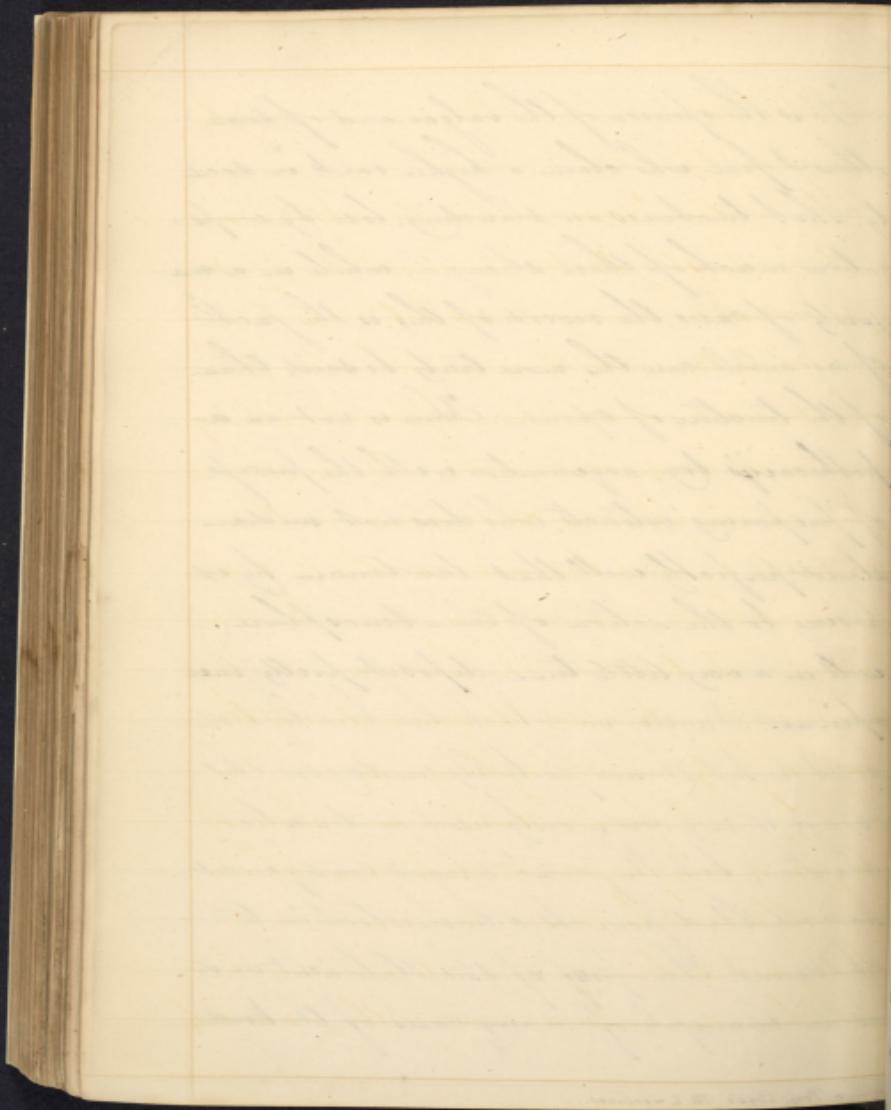
pain, the contraction of spasm, the allaying  
of irritability, &c. And like spirituous liquors  
it is employed to inspire courage, or to enrage  
fortitude to calm the troubled pertulence  
of passion or rear the sinking mind of melancholy  
in short, like them, it is the support  
of the coward, the solace of the wretched, and  
the dark source of intemperance, to the debauchee;  
and what is truly deplorable, it is become  
by its prohibition of its virtues, one of the most  
ordinary means resorted to for self destruction.

When administered in the form of some one of its  
pharmaceutical preparations which has been un-  
properly made, or which has subsguently un-  
dergone some change by long keeping, or exposure  
to the atmosphere, it sometimes proves  
a source of the most alarming and even fatal  
consequences. This is purely accidental,  
and only requires care to prevent its occurrence.



It is the opinion of the vulgar, and of some others, I fear, who claim a higher rank in society, that tinctures, on standing, lose by evaporation much of their strength; while in a majority of cases, the reverse of this is the fact\* of no article can this more truly be said than of the tincture of opium. There is not an apothecary's boy, acquainted with the process of preparing extracts, who does not understand perfectly well that laudanum, by exposure to the action of the atmosphere, will, in a very little time, deposit pretty pure opium. Laudanum which has been left exposed until it has partially undergone this change, is very commonly used in domestic practice: but the most serious consequences have resulted from its administration to children. In proof of this statement, and as an example of many cases of the kind,

\* Prof. Boyce's M. S. Lectures.



we have selected the following recorded by  
professor Physick.

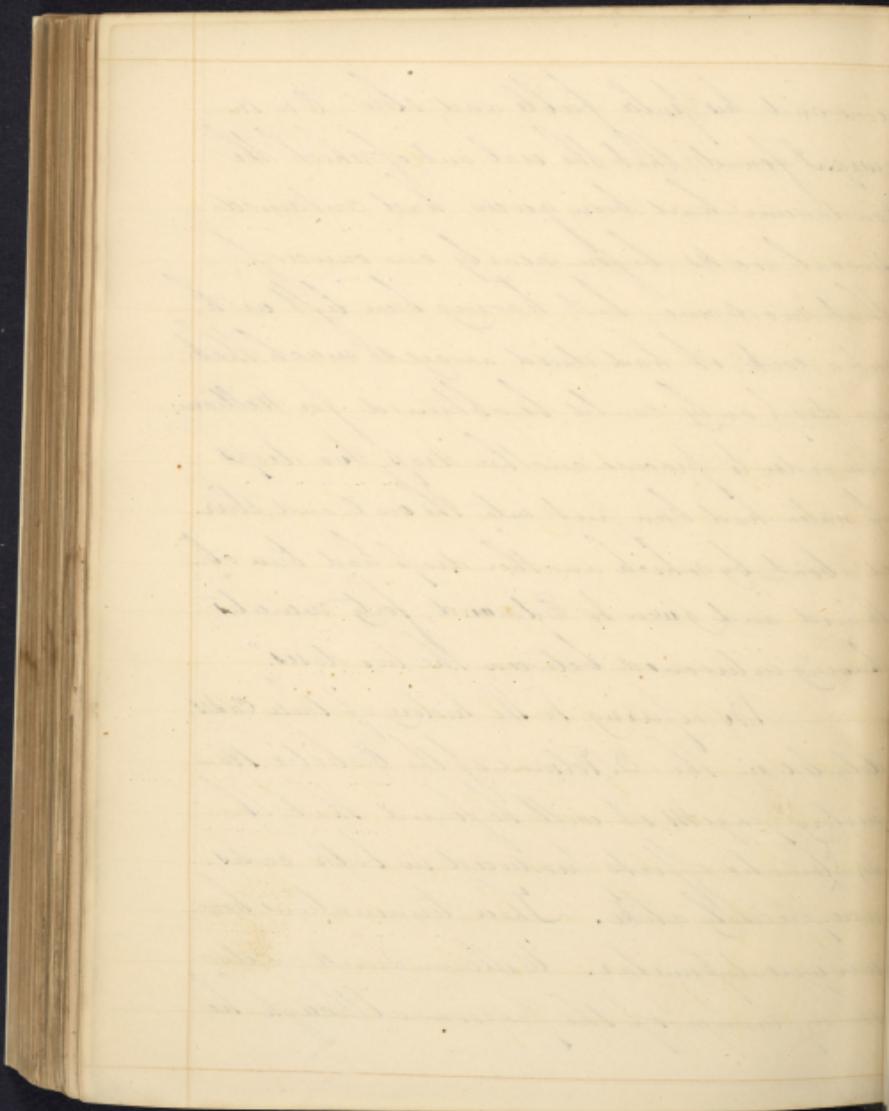
"On Thursday, 6th June, 1819, I was  
sent for "says the Doctor," in much haste at  
9 o'clock in the evening to visit two children  
of Mr. J. B., each three months old. They  
were twins and had been affected with hoop-  
ing cough for several weeks. The mother in-  
formed me that in consequence of their  
children having been very restless the night  
before, she had given them some lauda-  
num. To William she had given one drop  
at seven o'clock, and the same dose to Ed-  
mund forty minutes afterwards.

"I found William in a state of  
stupor or very profound sleep, from which  
he could not be roused, and was informed  
that just before my arrival his whole body  
had been convulsed; his breathing was labo-



nous and his pulse pulse and slow. On inquiry I found that the vial out of which the Laudanum had been given, had contained several weeks before nearly one ounce of that medicine, but having been left without a cork, it had dried away so much that one drop only could be obtained for William. In order to procure another drop, two drops of water had been put into the vial and stirred about, by which another drop had been obtained and given to Edward, forty minutes having intervened between the two doses."

By referring to the history of these cases detailed in the 3. Volume of the Eclectic Repertory, page 441, it will be found that the symptomatic effects produced in both cases were precisely alike. Their terminations however were dissimilar. William sunk under the influence of the poison although he

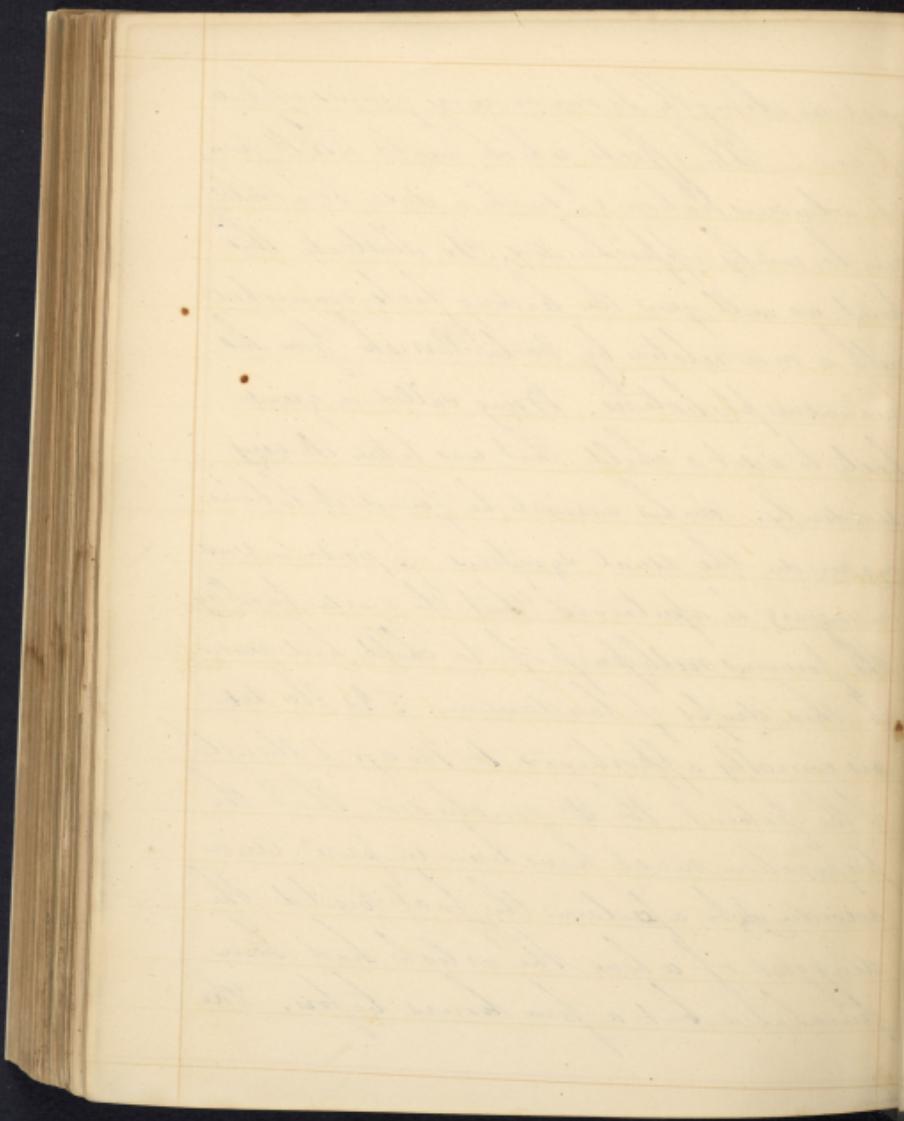


received all the assistance art could give, and  
an inventive genius suggest. Edmund in-  
deed recovered, but it was with the greatest  
difficulty after running the most narrow  
chance of meeting the fate of his brother.

Occasionally, Laudanum recently  
procured from the shops, produces the  
same unpleasant and fatal effect as that  
which we have already noticed. This is owing  
to its impurity of course, which may be fair-  
ly ascribed to its having been drawn off from  
drugs; or not having been filtered as laudanum  
of this kind contains, it is more than  
probable from the proximate incrusts of opium,  
a portion of undissolved and suspended par-  
ticles of that drug, one or more of which, e-  
qual perhaps to a fourth or fifth of a grain,  
might easily pass out with a drop, and  
thus in a few drops a portion is obtained



equal in strength to one or more grains of pure opium. The effects which would result from the administration of such a dose to a child can be easily apprehended. To illustrate this point we will give the leading facts connected with a case related by Doctor Parrish from his manuscript lectures. Being called in great haste to visit a child that was taken ill very suddenly, on his arrival, he found it labouring under the usual symptoms of poison and on inquiry he ascertained that the nurse, to allay the previous restlessness of the child, had given it three drops of Laudanum. As the dose was correctly apportioned to the age & strength of the patient, the Dr. concluded that the preparation must have been impure. And accordingly to ascertain the fact visited the druggist of whom the article had been purchased but a few hours before, the

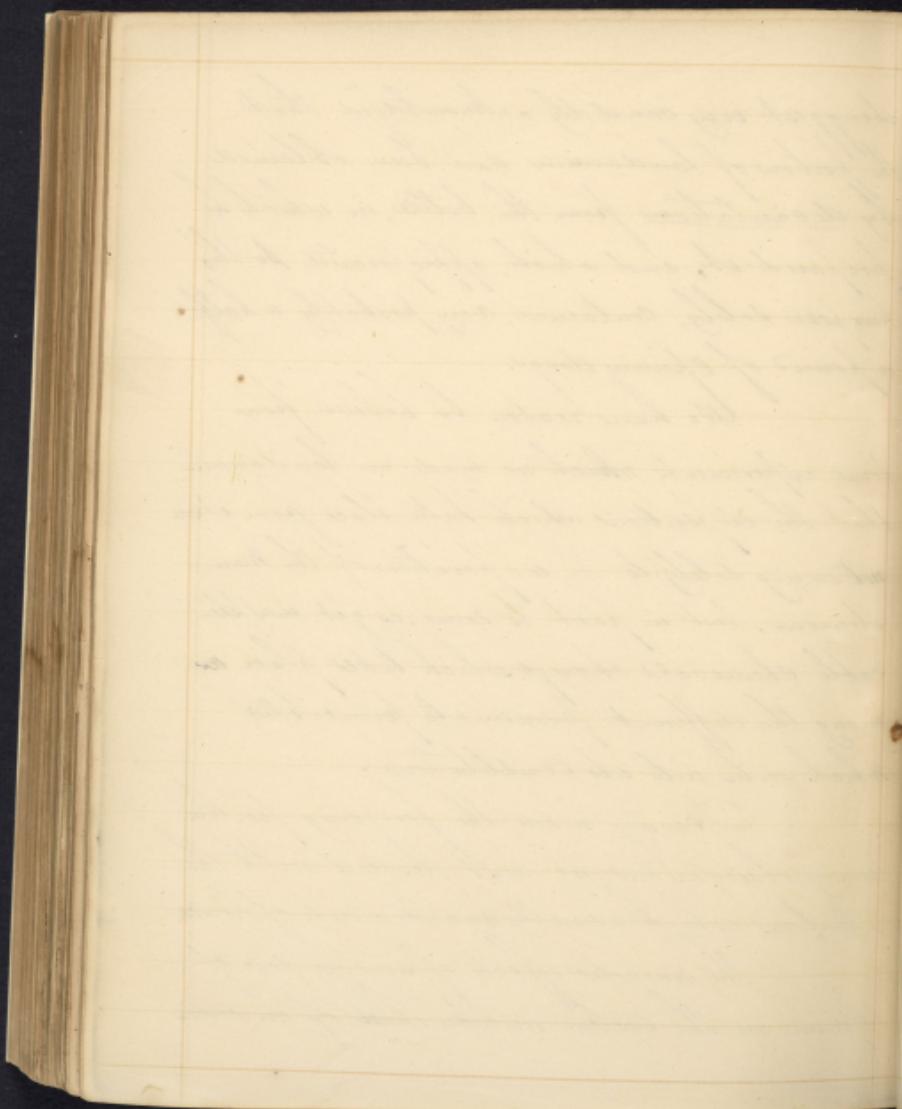


Druggist very candidly acknowledged that  
the portion of laudanum had been obtained  
by decantation from the bottle, in which he  
prepared it, and which, appropriated to this  
purpose solely, contained, very probably a half-  
a pound of opium does.

We have reason to believe from  
some experiments which we made on laudanum  
that the depositions which take place from it are  
not owing solely to the evaporation of the benz-  
ene, but in part to some, as yet inexplicable  
chemical change which takes place am-  
ong the different proximate principles  
which enter into its composition.

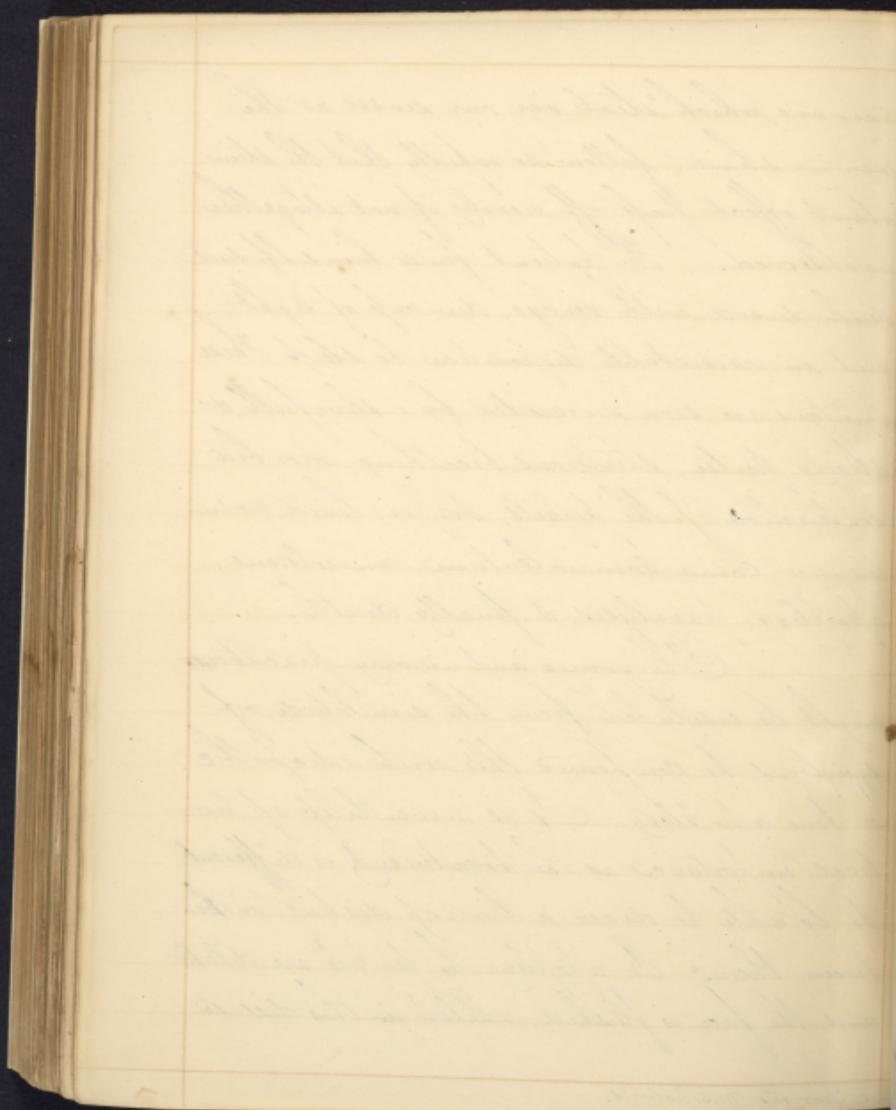
Having made the foregoing prelimi-  
nary observations, we next proceed with the  
symptoms which usually mark a case of poison.

The narcotic effects of an over dose of  
Opium on the system unlike those of an ordi-



very one, which steals over our senses as the  
evening shade; follow so rapidly that the stu-  
dent effects half off nearly if not altogether  
unobserved. The patient finds himself sud-  
denly seized with vertigo, dimness of sight,  
and an irresistible disposition to sleep. These  
symptoms are soon succeeded by a slow, full, &  
strong pulse, stertorous breathing, morbid  
contraction of the pupils, torpor, livid coun-  
tenance, coma somnolentum, convulsions,  
apoplexy, paralysis, & finally death.

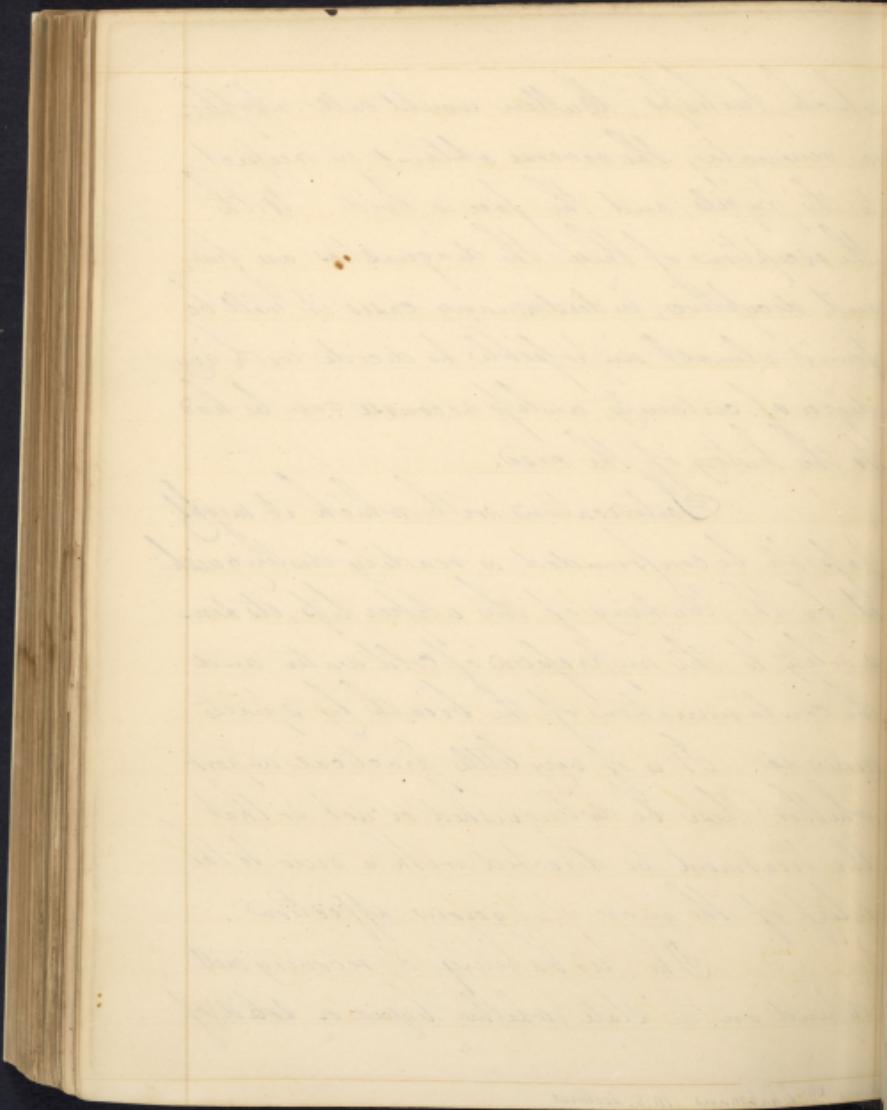
The young and unawary practitioner  
might be easily led from the similitude of  
symptoms to confound this with idiopathic  
or true apoplexy. It is nevertheless of prac-  
tical importance as the treatment is different  
to be able to draw a line of distinction be-  
tween them. In apoplexy the pupils are dilated  
and the face is flushed, whilst in this disease



which, perhaps, Cullen would call *aphthae*  
*ia venenata*, the reverse obtains in respect  
to the pupils, and the face is livid. With  
the exception of these the diaquastics are few,  
and deceptives, indeed in many cases it will be  
found almost impossible to decide with any  
degree of certainty unless recourse can be had  
to the history of the case.

Intoxication with which it might  
possibly be confounded is readily distinguish-  
ed by the flaccidity of the upper lip, its sensi-  
tivity to the impression of cold water and  
the contamination of the breath by spirits  
mino se. It is of very little practical import  
whether these be distinguished or not so that  
the treatment be directed with a view to the  
relief of the more dangerous affection.

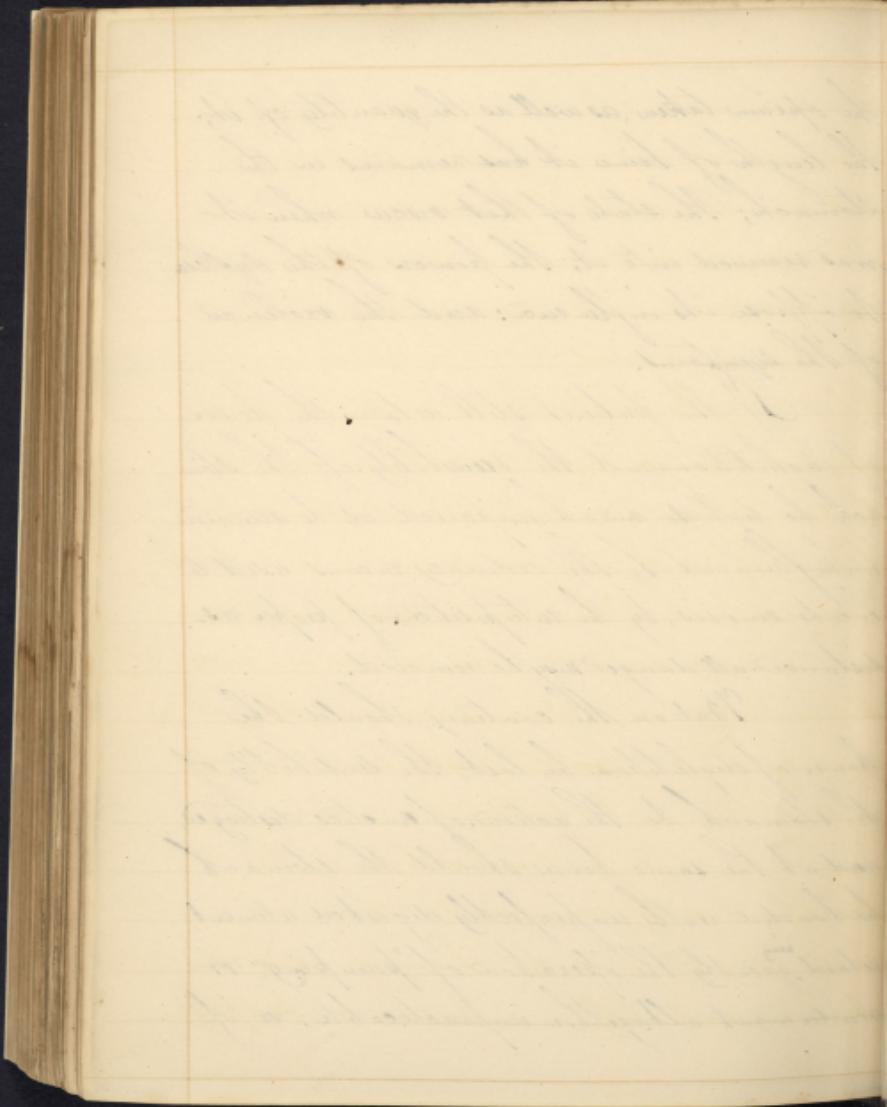
The probability of recovery will  
depend on the state (whether liquid or solid) of



the opium taken, as well as the quantity of it; the length of time it has remains in the stomach; the state of that viscus when it was received into it; the power of the system to oppose its influence; and the violence of the symptoms.

If the patient still retains the power of digestion and the sensibility of the stomach be not so much impaired as to remain uninfluenced by the ordinary means used to excite emesis, by the interposition of proper assistance all danger may be removed.

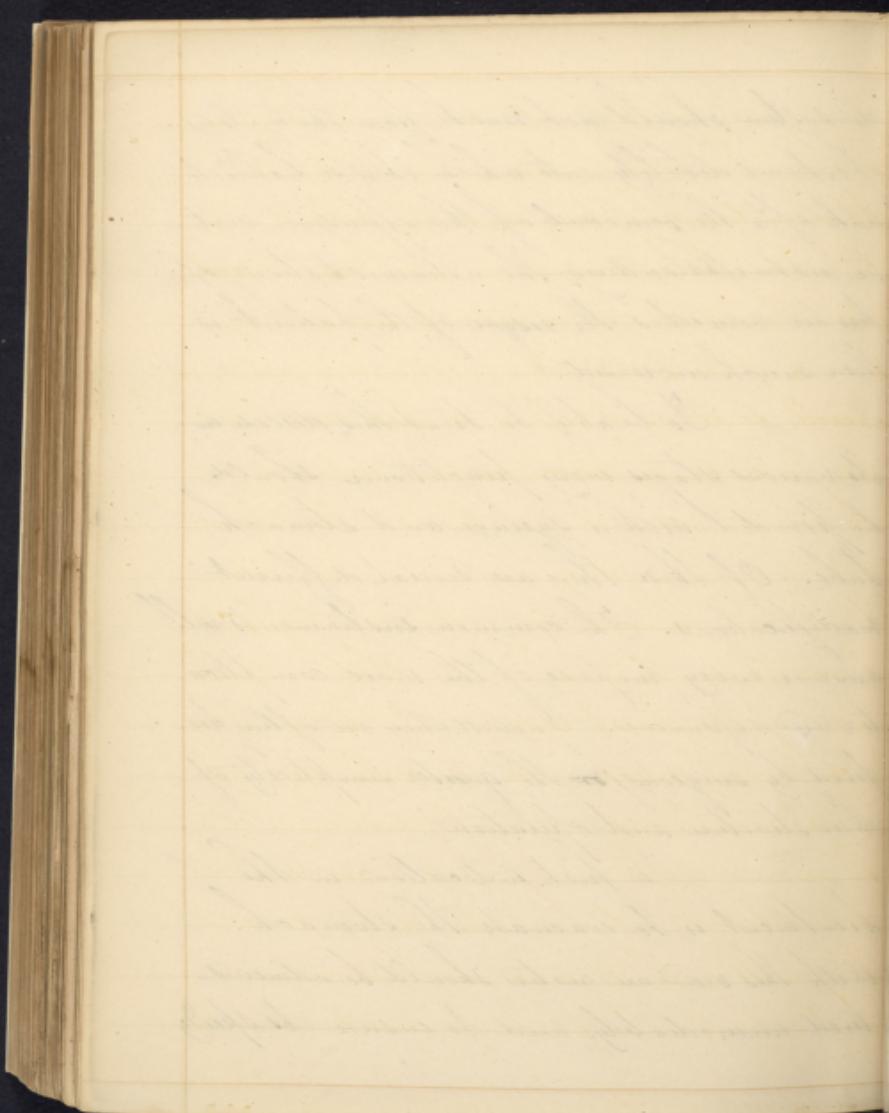
But on the contrary, should the power of digestion be lost, the sensibility of the stomach to the action of anetics destroyed, and at the same time should the stomach be loaded with imperfectly digested aliment, retard greatly the operation of "pumping," or rendering it altogether unpracticable; or if



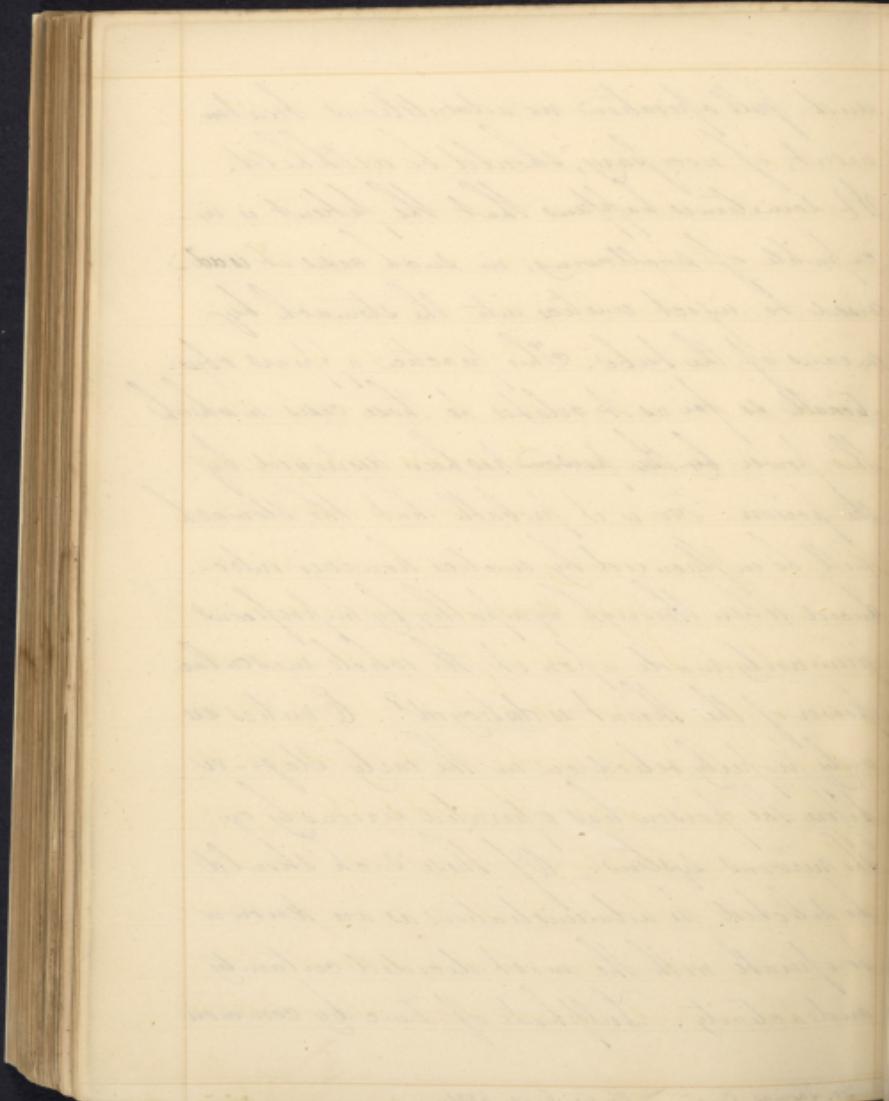
the system should not react from that state of extreme debility into which it is so liable to sink after the removal of the offensive matter, notwithstanding the administration of proper remedies, the risque of the patient is then much increased.

To be able to treat this disease in its various stages every practitioner should be provided with a syringe and stomach tube. Of these there are several different modifications. The common instrument will answer every purpose of the more complicated and expensive. Indeed they are often preferred by surgeons for the greater simplicity of their structure and operation.

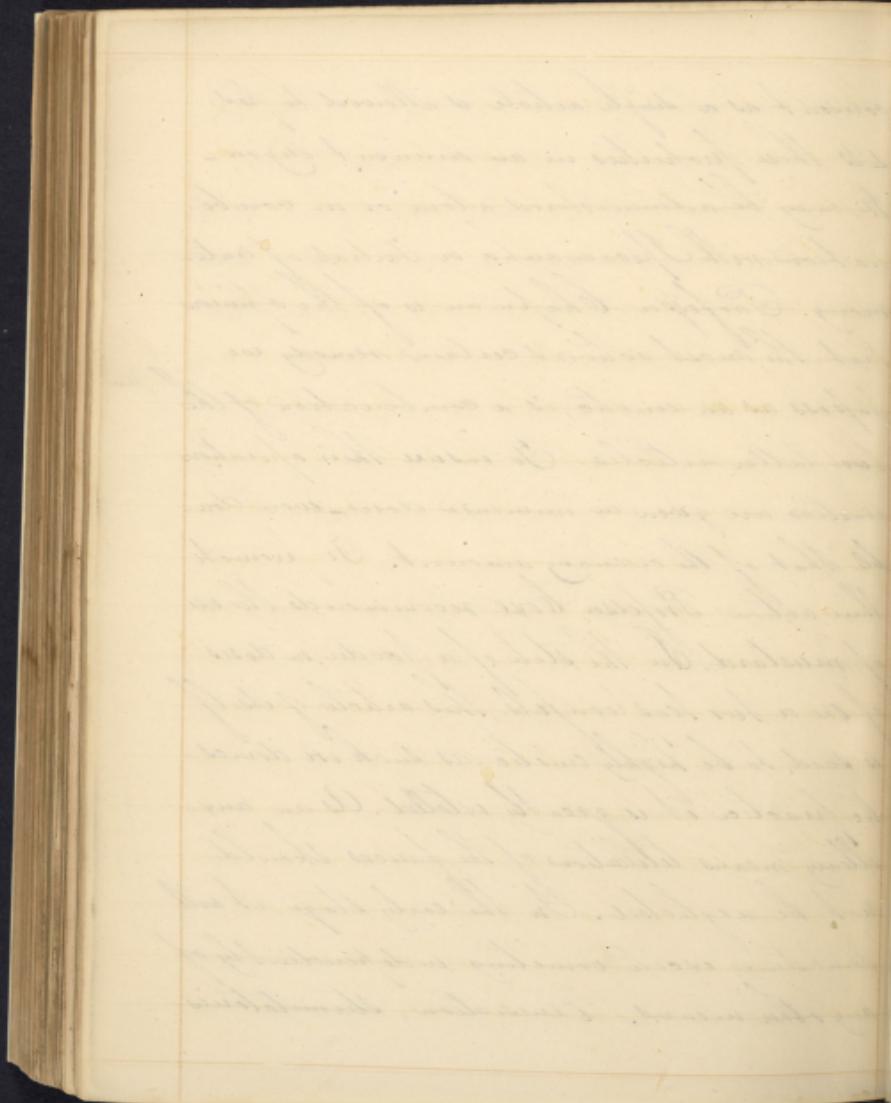
The first indication in the treatment is to evacuate the stomach. With this view an emetic should be administered immediately, and to ensure its speedy



and full operation no adverbial assistance  
would, if necessary, should be withheld.  
It sometimes happens that the patient is in-  
capable of swallowing; in such cases it is ad-  
vised to inject emetics into the stomach by  
means of the tube. This practice appears ob-  
jectionable so far as it relates to those cases in which  
the power for the poison has been destroyed by  
the poison. How is it probable that the stomach  
will be influenced by emetics however intro-  
duced when through sympathy, by impressions  
primarily made upon it, the whole muscular  
power of the throat is destroyed? Emetics are  
only properly relied on in the early stage - or  
before the poison has operated seriously on  
the nervous system. Of these such should  
be selected for administration as are known  
to operate with the most decided certainty  
and activity. Sulphate of Tartar by common



consent as a single article is allowed to pos-  
sess these properties in an eminent degree.  
It may be administered alone or in combi-  
nation with Specacuanha or Turbati of anti-  
mony. Professor Chapman is of the opinion  
that the most active & certain remedy we  
possess as an emetic, is a combination of the  
two latter articles. To ensure their operation  
metics are given in immense doses, even dou-  
ble that of the ordinary amount. To promote  
their action Professor Cox recommends the use  
of mustard. In the state of a powder, in doses  
of one or two tea-spoonfuls, this article of itself  
is said to be highly emetic, as such in domes-  
tic practice it is greatly extolled. As an aux-  
iliary means titillation of the fauces should  
not be neglected. In the early stage it will  
sometimes excite vomiting independently of  
any other means. Emulsion, stimulatives

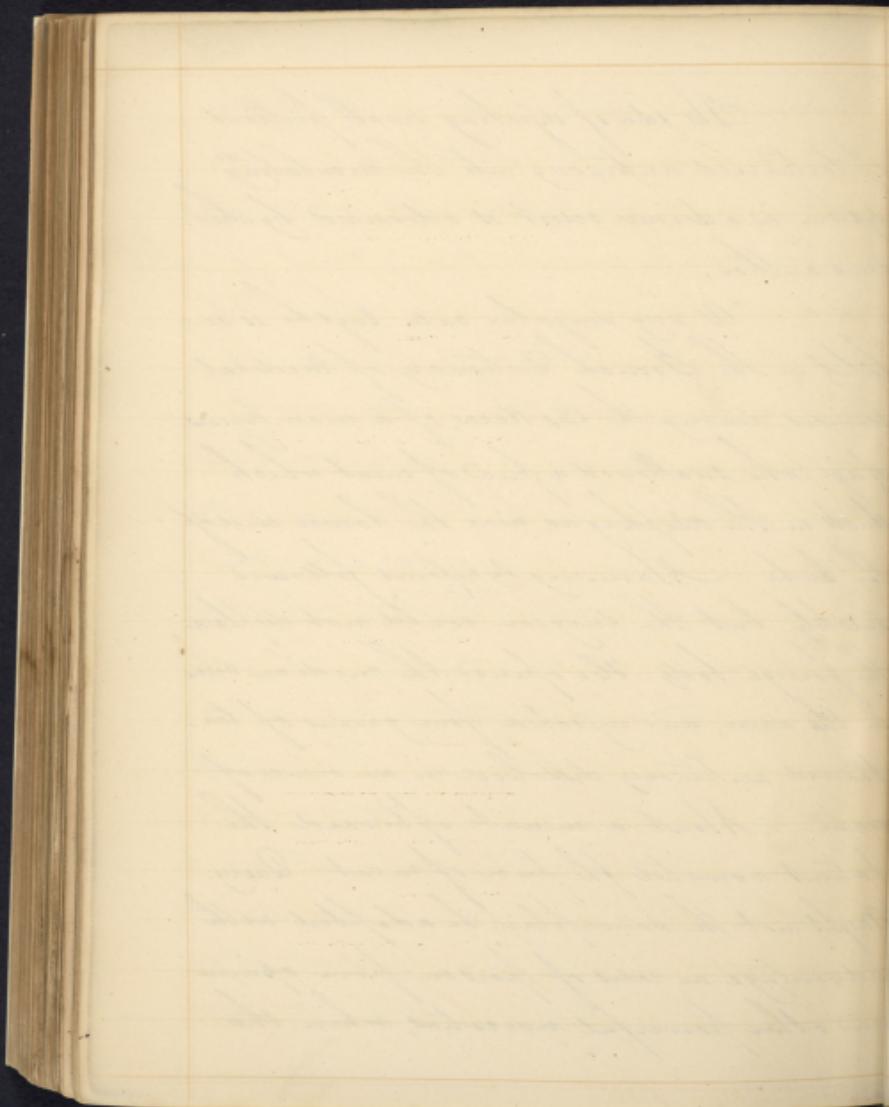


The dashing of tepid water over the body, &  
a variety of remedies calculated to arouse the  
system, may be properly resorted to when the  
emetic fails to operate from a want of  
proper irritability of the stomach. But  
when there is great torpor in the stomach  
neither emetics nor any other remedy will be  
likely to excite vomiting. In certain cases how-  
ever it may be proper to have recourse to some  
others. Dr. Thomas states that in certain  
cases of poison by opium or such other pow-  
erful sedatives occasioning great torpor in the  
stomach so as to resist the effects of even  
strong emetics introduced into that organ,  
a scrupler or half a drachm of tartarized an-  
tinony, dissolved in a little water, and thrown  
up in the intestines in form of a clyster,  
has excited vomiting, and at the same time  
fully evacuated the entire alimentary tube.



The idea of injecting small portions of tartarized antimony into the circulating system as a dernier resort is advanced by the same author.

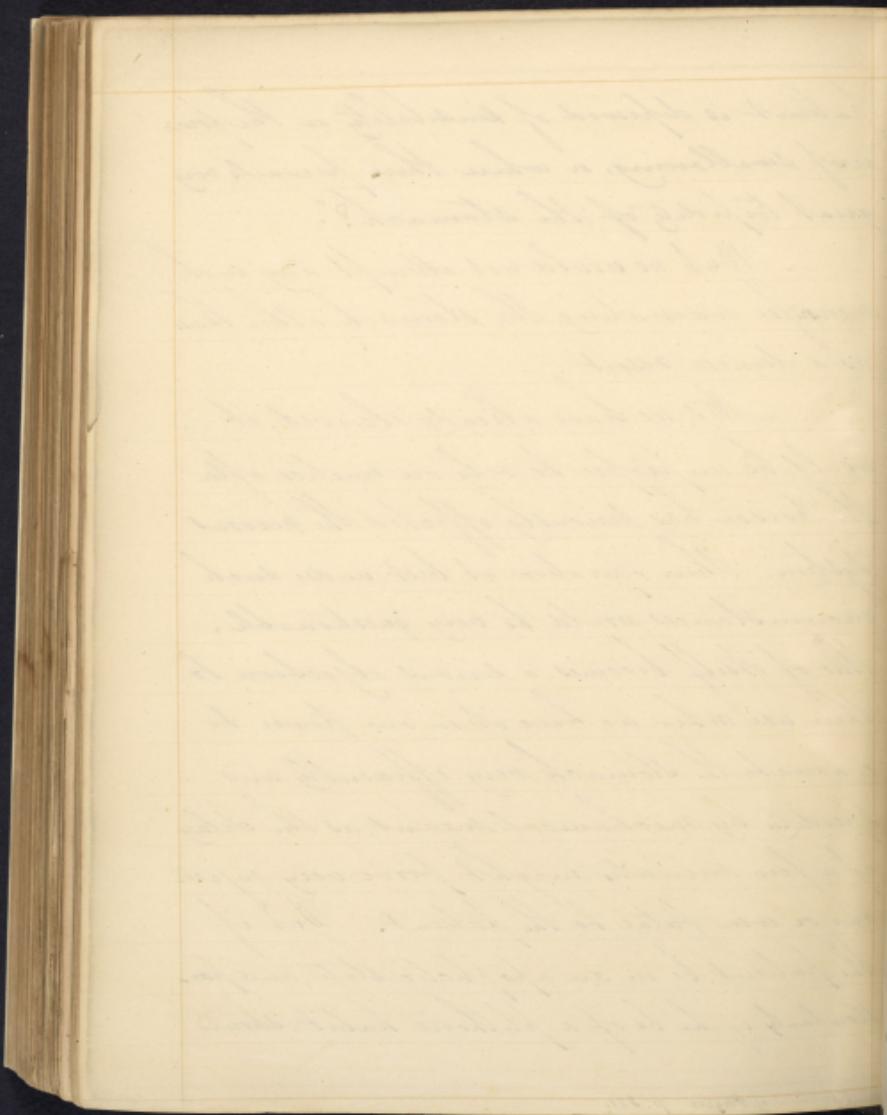
"A very singular case says he is related in the French Dictionary of Medical Sciences, among the Cas Rares, of a man boozed of beer, who swallowed a piece of meat which stuck in the oesophagus, near the lower end of the tube. Alarming symptoms followed quickly, but the surgeon could not dislodge the foreign body. He opened the median vein in the arm, and injected four grains of tartarized antimony dissolved in an ounce of water. About a minute afterward the patient vomited the piece of meat. Query. Might not the same plan be adopted with advantage in cases of poison from opium and other powerful narcotics, where the



patient is deprived of sensibility or the power of swallowing, or where there prevails very great torpidity of the stomach?".

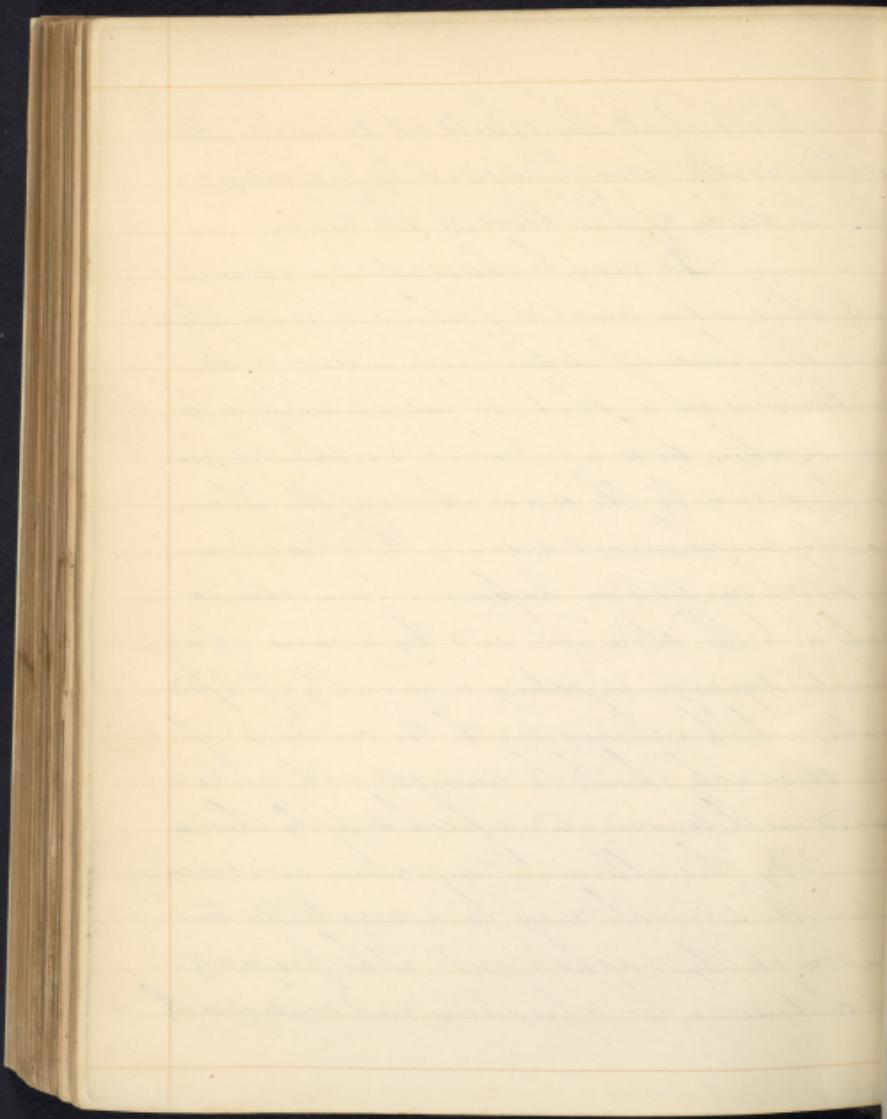
But we could not attempt any such measure for evacuating the stomach other than as a dernier resort.

As we have already observed, it would be unproper to rely on emetics after the poison has seriously affected the nervous system. Their operation at best under such circumstances would be very questionable, this of itself becomes a serious objection to their use when we have it in our power to evacuate the stomach very efficiently and speedily by mechanical means, as the delay of a few minutes might prove very injurious or even fatal to the patient. But if the patient be in an apoplectic state, and particularly if he be of a plethoric habit, should



they operate at all, the effects of vomiting thus created would prove pernicious by increasing the tendency of the blood to the head.

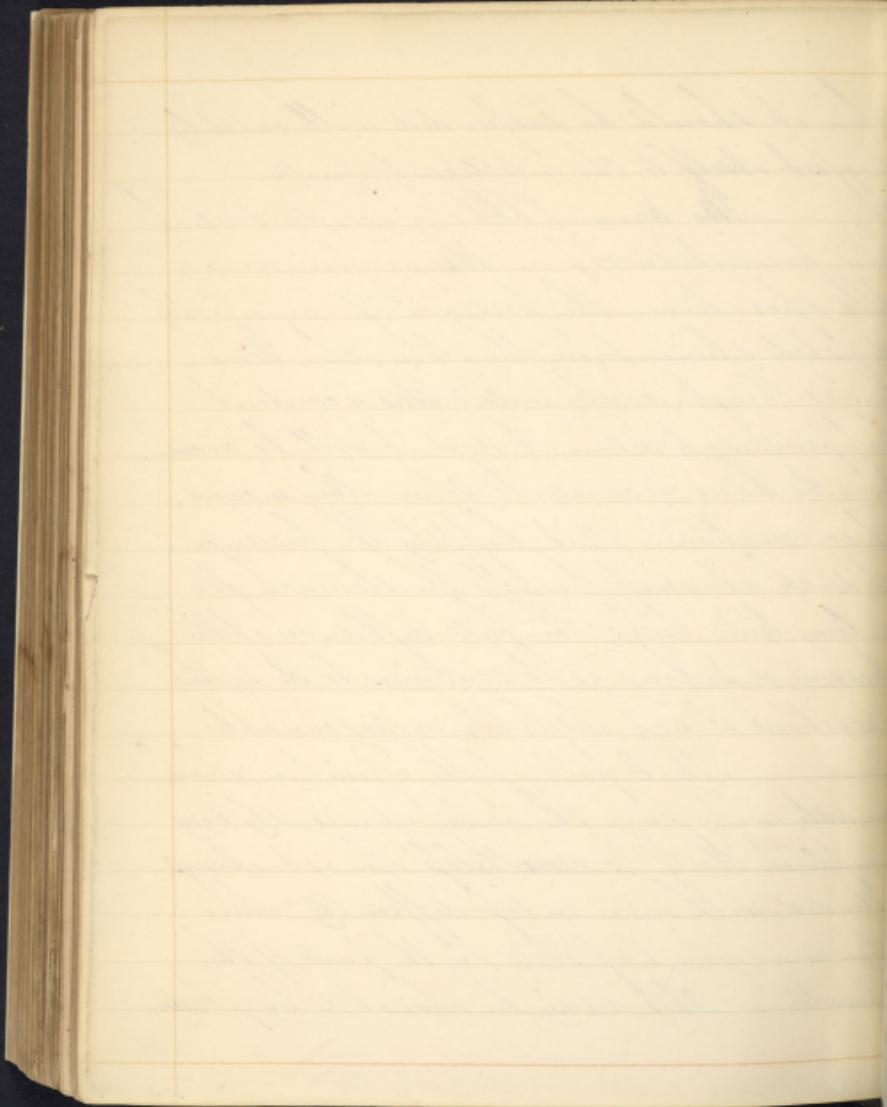
It may be observed as a general rule that when emetics fail to operate strongly, or the power of deglutition is lost, or the patient is in a state of insensibility or convulsions, or when he is a hæmætic, we should recur at once to the evacuation of the stomach by mechanical means; the operation of which consists in passing a gum elastic tube into the stomach and by means of a Fowler's syringe injecting a quantity of tepid water, which mixing with the contents of the stomach should be immediately, afterward withdrawn and a fresh supply thrown in. By this alternate injection and evacuation the stomach may in a very little time be completely washed out. The property of continuing the operation, and consequently



when it should be suspended will readily suggest itself to the intelligent operator.

We know of but one accident which can prevent success in the performance of this operation - the presence of imperfectly digested aliment in the stomach - Some times though rarely indeed this accident happens; but when it does it will be necessary to have recourse to some other means of evacuation. But happily the presence of such aliment protects the stomach for a long time from the full influence of the poison, & so long as it continues to do so, this operation is not absolutely indispensable.

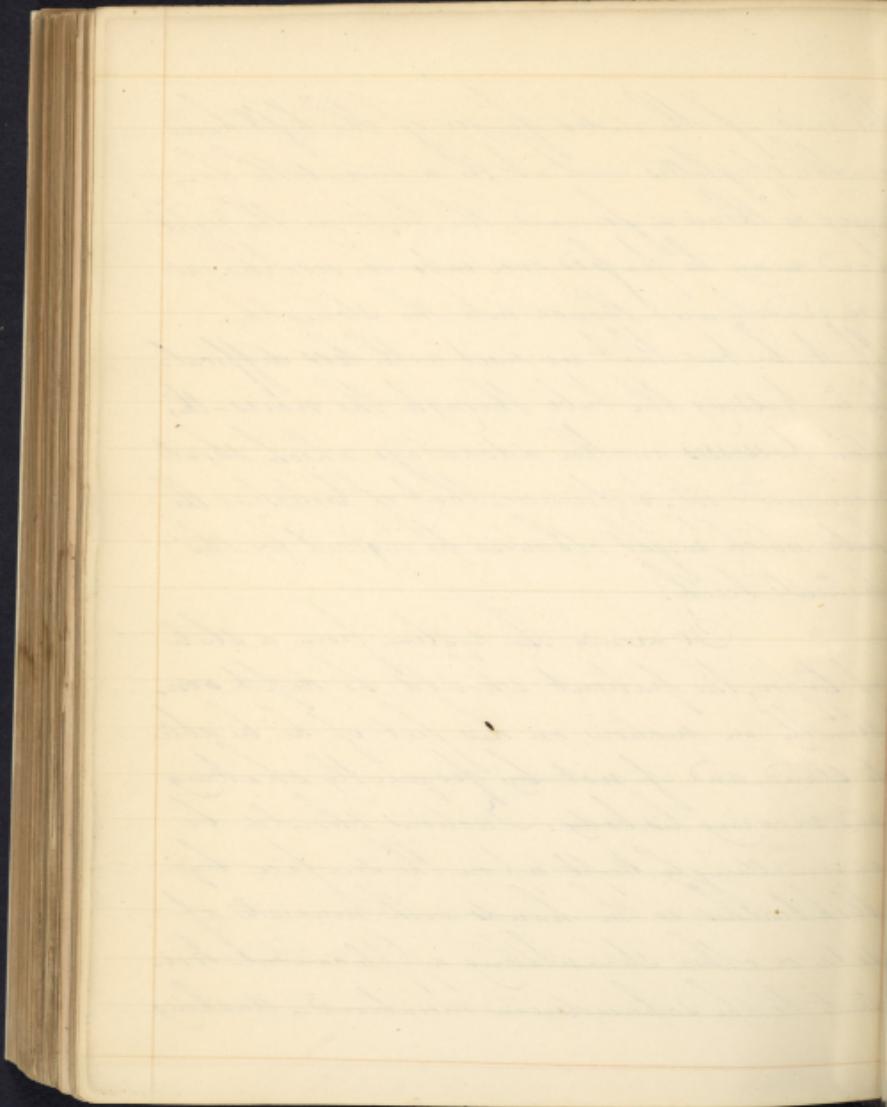
That part of the operation which consists in passing the tube, apparently very simple in itself, is nevertheless almost always attended with more or less difficulty where there is a want of skill on the part of the operator. This may be obviated by placing



The end of the index finger of the left hand on the epiglottis and at the moment the larynx is thrown forward, the tube in the right hand may be passed over into the oesophagus very readily and thence into the stomach.

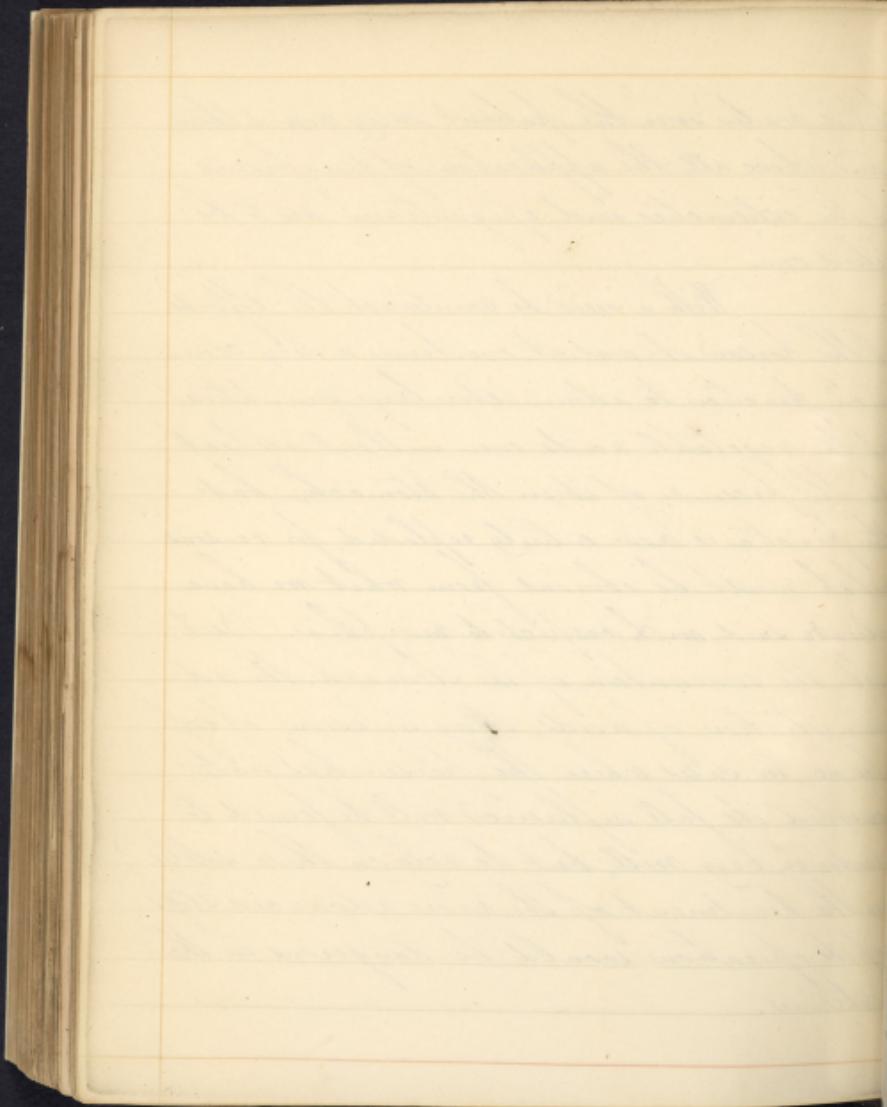
If it be true that we meet with less difficulty in passing the tube through the nares - this plan possesses another advantage which should recommend its preference - that of protecting the tube, which might otherwise be injured by the patients teeth.

To arouse the system from a state of torpor, the patient should be kept constantly in motion, on his feet if he be able to stand, and if not by frequently shaking and moving his body. Frictions should be unceasingly kept up on the surface by flesh brushes, or the hands with muriate of soda or other stimulating applications. Irritants to the Schneiderian membrane - dashing

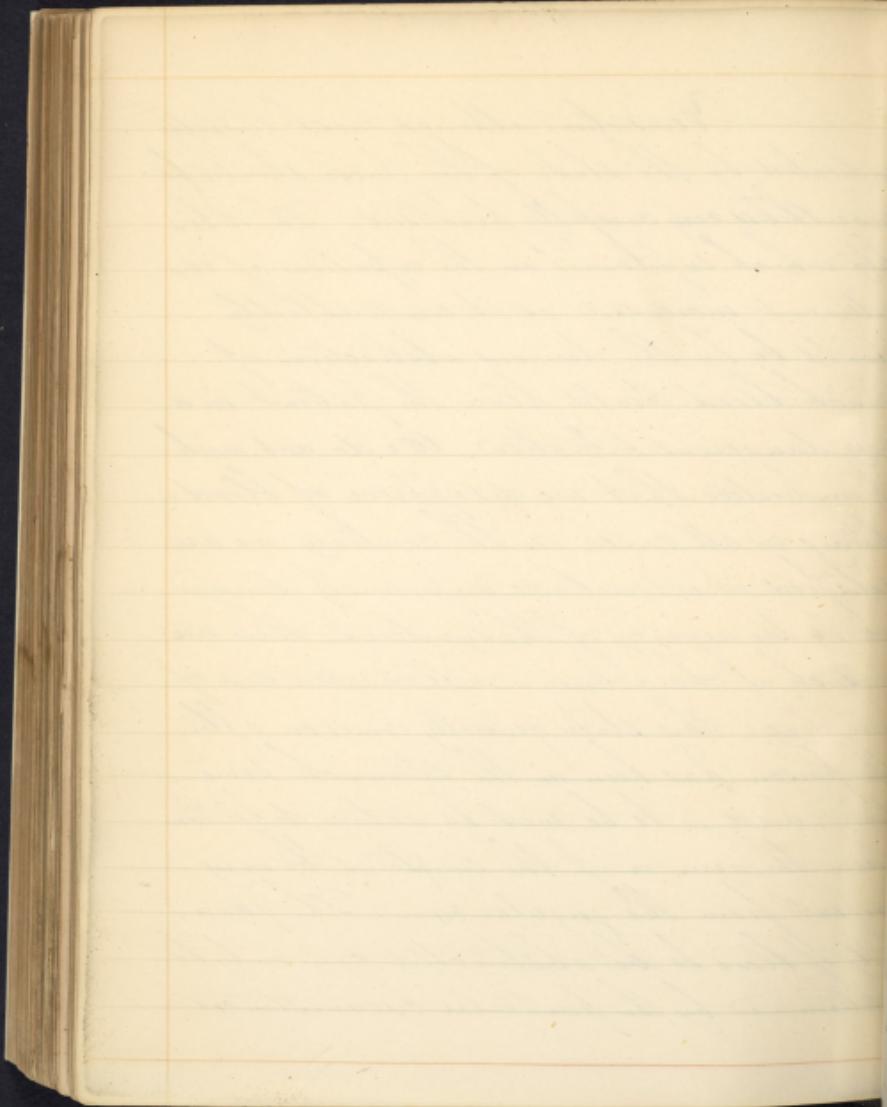


spud water over the patient every now & then  
and above all the application of sinapisms  
& the estomachics and epigastrium are to be  
rubbed on.

With a view to counteract the effects  
of the poison it was at one time a very com-  
mon practice to administer large quantities  
of the vegetable acids even without respect  
to the presence of it in the stomach; but  
the practice is now entirely exploded, for reasons  
which must be obvious from what we have  
already said with respect to morphia. But  
after the evacuation of the stomach the ad-  
ministration of acids, & especially of coffee &c, in cases where the poison has not  
overacted its full influence will be found to  
answer very well, but to rely on these solely  
in the treatment of the more advanced stages  
of its operation would be dangerous in the  
extreme.



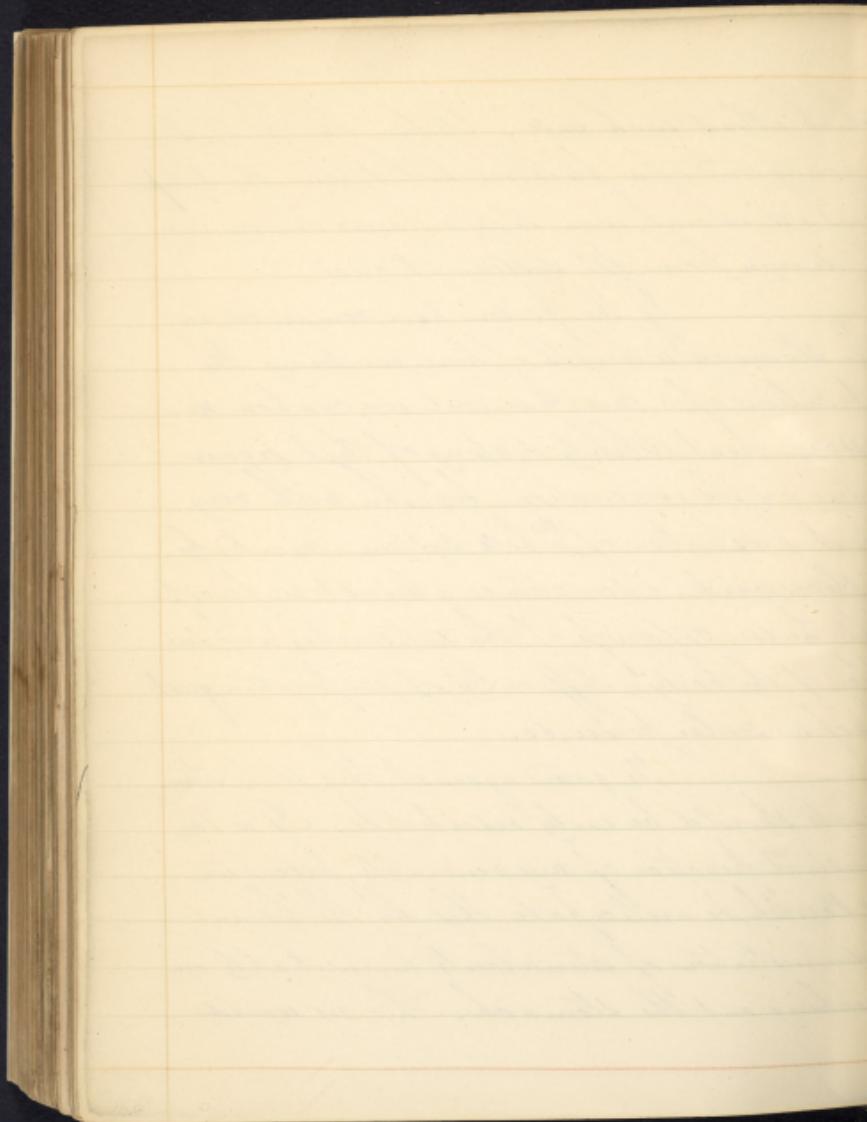
Venesection although most generally indicated by the state of the pulse should be nevertheless very carefully practised. The debility which supervenes on the cephalic or excurrent, increased as it undoubtedly would be by the previous abstraction of much blood would place the patient in a very dangerous situation. We do not wish it understood that we disapprove of blood-letting in all cases; on the contrary we are satisfied it is sometimes unfeinly demanded by the urgency of the symptoms; these are such as characterise a well marked case of oprey. This state generally comes on after the poison has been in the stomach some time, and is to be met by active depletion from the arm, or if the symptoms be very urgent from the jugular vein. The quantity of blood to be abstracted can only be determined by the particular circumstances



which attend each case. When the patient  
is young and of a plump habit, and the syrup  
vomits are urgent, even sixty or more ounces may  
be drawn from the system at once.

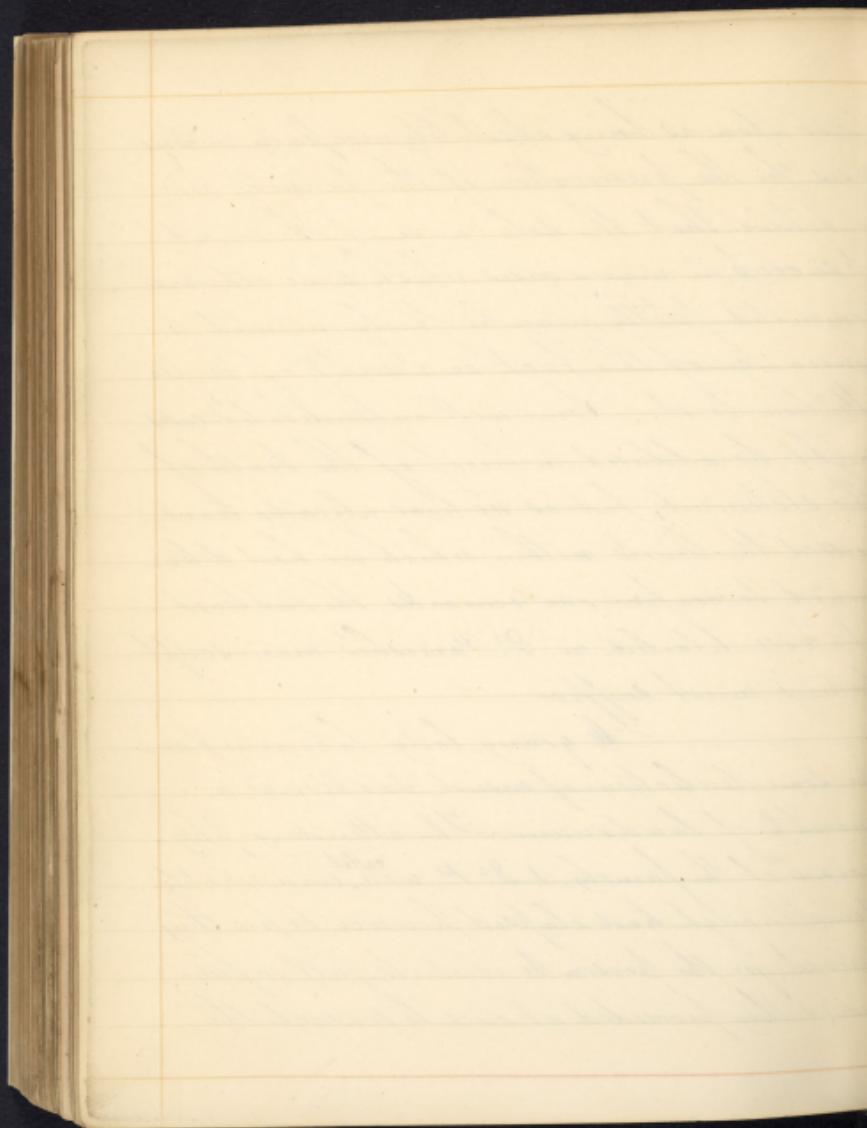
If the poison have remained in  
the stomach a length of time, rendering the  
operation of a mechanical evacuation ne-  
cessary, great debility & atony of that organ  
will be on its evacuation, together with very  
great prostration of <sup>the</sup> whole system - marked by  
a slow weak, & sometimes almost impercep-  
tible pulse, coldness of the extremities, and sur-  
face of the body - difficulty of respiration great  
loss of muscular power, &c.

To guard against this state stim-  
ulants should be early resorted to. It is the  
constant practice of my venerable preceptor,  
Dr. Parrish, to anticipate this by the liberal  
administration of stimulants immediately on  
washing out the stomach. This we would



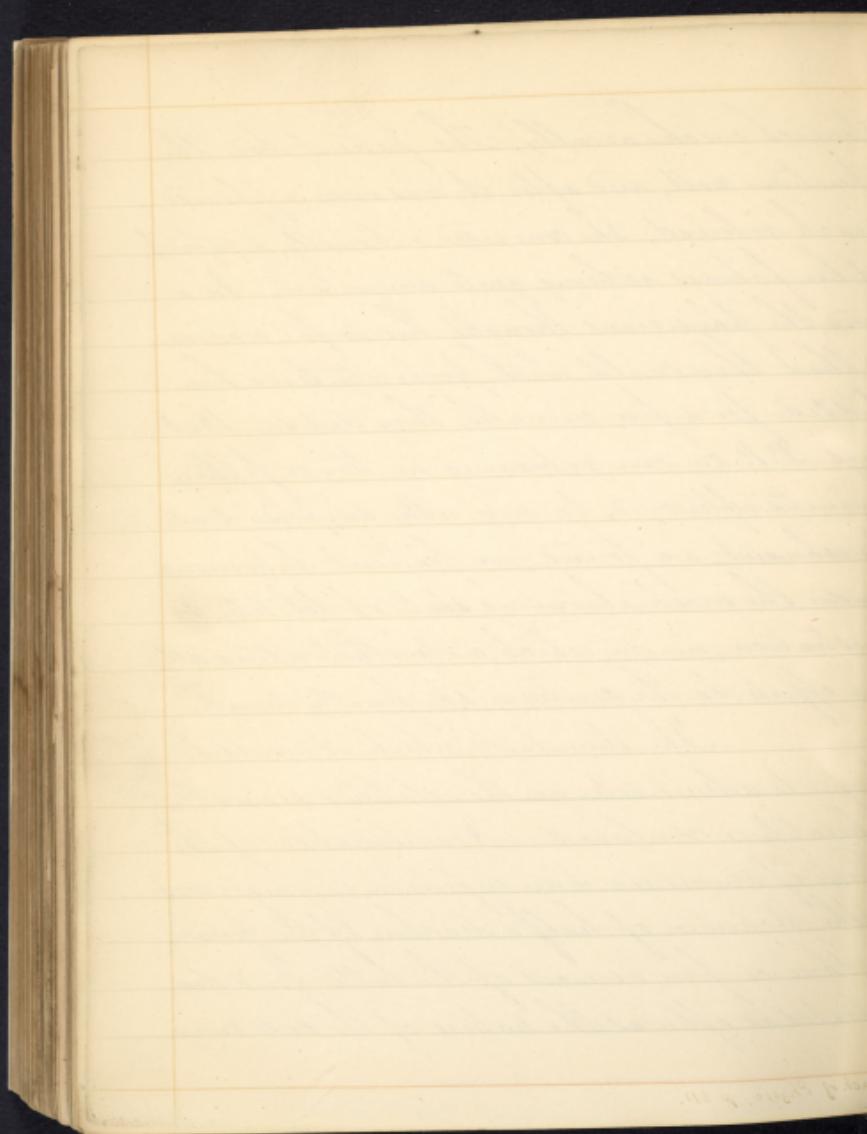
isit upon as being absolutely necessary in some cases for the preservation of the patient; and we believe that the sole cause of the want of success, in many cases which have otherwise terminated fatally, may be fairly imputed to ignorance of this fact or a want of proper attention to it. Some well authenticated cases might be adduced in proof of the truth of this statement, but as we have already transgressed the limits within which we had determined to confine our remarks, the outlines of a case detailed in Dr. Parrish's manuscript lectures, must suffice.

A young lady labouring under some dereliction of mind, swallowed a quantity of laudanum. The attending physician of the family, Dr. P. <sup>called</sup> were, immediately. Time enough had elapsed, however, before they arrived, for the poison to exert its full influence, & they proceeded at once to evacuate the



stomach mechanically. The patient bore the operation well, and after it was over appeared much relieved; she conversed rationally, & expressed her feelings as being quite comfortable. In a word the physicians thought her so far recovered that they could with propriety leave her bedside for a few minutes; they did so. But says Dr. P. on our returning in ten or fifteen minutes afterwards, to my utter surprise & alarm, we found our patient labouring under the most alarming state of debility & prostration, under which, notwithstanding all our efforts to the contrary, she finally sunk.

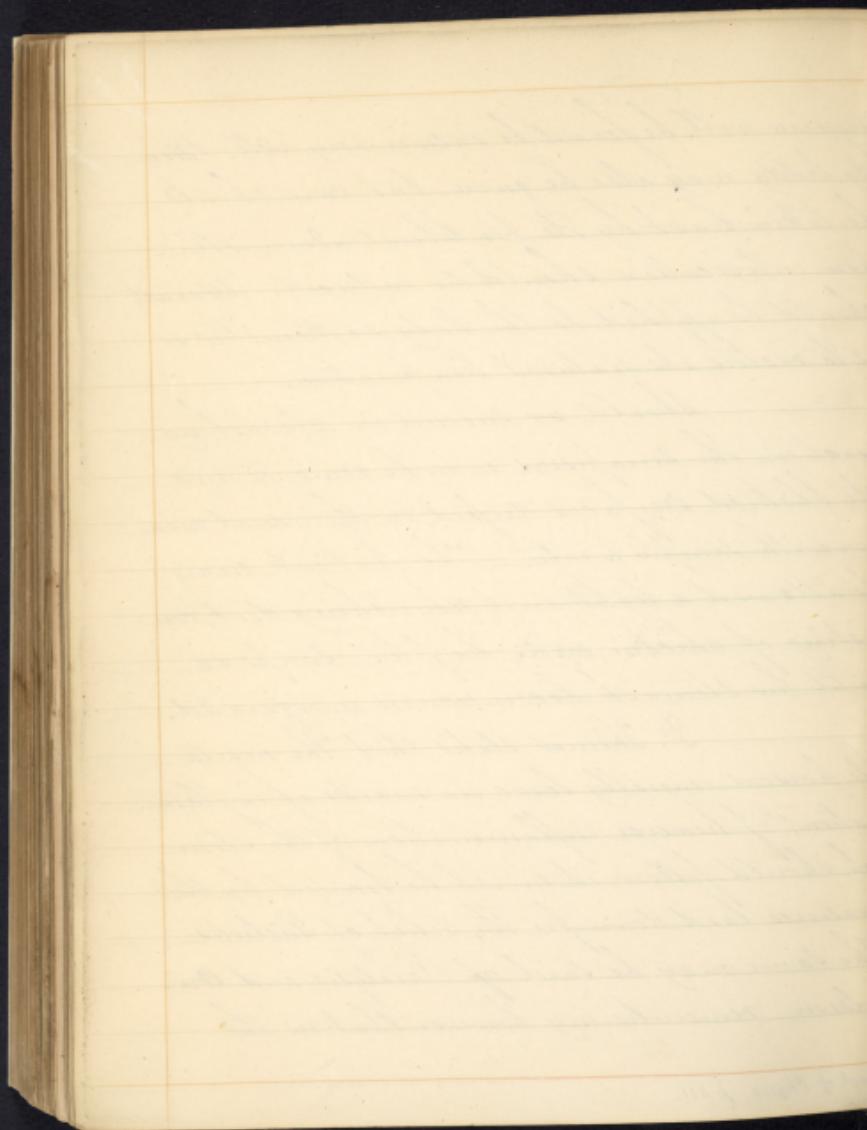
The stimulants, which it would be proper to administer, are the volatile & aromatic, separately or combined. A combination of the spirits of ammonia & an infusion of ginger roots in the proportion of half a drachm of the former, to three or four ounces of the latter, for a dose, repeated as often as the nature of the case may



rum will be found to answer very well. Bran by toddy may also be given, but care should be taken least by its too liberal administration intoxication should be induced. Warmth should be applied to the body & extremities so as to restore its natural temperature.

Should we succeed in establishing reaction the sinapisms may be removed and the blistered surfaces dressed in the usual manner with simple ointment. The patient may be allowed a light and nourishing diet, consisting of chicken water, beef tea, soups &c. until his stomach becomes more invigorated.

Dr. Thomas states that "the vegetal poisons usually leave no marks of inflammation; if however inflammation of the stomach should follow it must be treated by those measures laid down for the relief of Gastritis. The same may be said of Paralysis and Convulsion, remembering however that in the



Treatment of this those antispasmodics should  
be selected for administration which do not  
combine with their ordinary properties that  
of a narcotic; for such might probably prove  
very injurious.

